

POLISHING METHOD, POLISHING APPARATUS, PLATING METHOD,  
AND PLATING APPARATUS

ABSTRACT OF THE DISCLOSURE

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A polishing method and polishing apparatus able to easily flatten an initial unevenness with an excellent efficiency of removal of excess copper film and suppress damage to a lower interlayer insulation film, and a  
10 plating method and plating apparatus able to deposit a flat copper film. The polishing method comprises the steps of measuring thickness equivalent data of a film on a wafer, making a cathode member smaller than the surface face a region thereof, interposing an electrolytic  
15 solution between the surface and the cathode member, applying a voltage using the cathode member as a cathode and the film an anode, performing electrolytic polishing by electrolytic elution or anodic oxidation and chelation and removal of a chelate film in the same region  
20 preferentially from projecting portions of the film until removing the target amount of film obtained from the thickness equivalent data, and repeating steps of moving the cathode member to another region to flattening the regions over the entire surface. Further, plating is  
25 performed by a reverse reaction of the above.